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EXAMINER
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* RAUNO RANTANEN

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Appeal 2009-001140  
Application 10/019,120  
Technology Center 1700

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Decided: June 29, 2010

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Before EDWARD C. KIMLIN, TERRY J. OWENS, and  
PETER F. KRATZ, *Administrative Patent Judges*.

KRATZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 20-26, 29-34, 36-40, 42-46, 48-52, 54-66, and 76-85. We have jurisdiction pursuant to 35 U.S.C. § 6.

Appellant's claimed invention is directed to a method of applying continuous jets of a treating agent onto a moving surface using a nozzle plate and an apparatus therefor.

Claims 20, 57, and 83 are illustrative and reproduced below:

20. A method for applying a treating agent onto a moving surface, comprising the steps of:

(a) feeding a treating agent for treating a web into at least one feeding chamber; (b) forming continuous jets of the treating agent by directing the treating agent through openings in at least one nozzle plate, the openings in which the jets are formed being defined solely by the at least one nozzle plate; and

(c) directing the jets of the treating agent toward the moving surface such that each of the jets are separated from the other ones of the jets when the jets exit the at least one nozzle plate.

57. An apparatus for spreading a treating agent onto a moving surface, comprising:

a body defining at least one feeding chamber for receiving a treating agent; and

means for directing the treating agent from the feeding chamber onto the moving surface, said means including at least one nozzle plate that at least partly closes said at least one feeding chamber, said at least one nozzle plate including openings in which continuous jets of the treating agent are formed when the feeding chamber is at least partially filled with pressurised treating agent, wherein each of said openings comprise a periphery defined entirely by said at least one nozzle plate, and wherein said openings in which the jets are formed are defined solely by said at least one nozzle plate, and wherein the jets are directed onto the moving surface, each of the jets being separated from the other ones of the jets at the exit of the jets from the at least one nozzle plate.

83. An apparatus for spreading a treating agent onto a moving surface, comprising:

at least one feeding chamber for receiving a treating agent;

means for directing the treating agent from said at least one feeding chamber onto the moving surface, said means including at least one nozzle plate that at least partly closes said at least one feeding chamber, said at least one nozzle plate including openings and having a length that is greater than a width of an area of the moving surface that is to be treated, wherein each of said openings comprise a periphery defined entirely by said at least one nozzle plate, and wherein continuous jets of the treating agent are formed by said openings and directed onto the moving surface when the feeding chamber is at least partially filled with pressurised treating agent; and

an actuator operatively connected to said at least one nozzle plate for moving said at least one nozzle plate relative to said at least one feeding chamber so that said at least one nozzle plate is at least partly outside the width of the area of the moving surface that is to be treated.

The Examiner relies on the following prior art reference as evidence in rejecting the appealed claims:

Mozzi	3,301,699	Jan. 31, 1967
Franz	4,072,772	Feb. 7, 1978
Ruggiero	4,901,093	Feb. 13, 1990
Daniels	5,219,618	Jun. 15, 1993
Waryu	5,405,087	Apr. 11, 1995
Kunze-Concetwitz ('463)	WO 09610463	Apr. 11, 1996
Briggs	5,649,867	Jul. 22, 1997
Haalland	5,736,195	Apr. 7, 1998
Kustermann	5,789,022	Aug. 4, 1998
Hensel	5,790,147	Aug. 4, 1998
Kunze-Concetwitz ('952)	5,964,952	Oct. 12, 1999
Bernert	6,063,450	May 16, 2000
Kohno	6,130,682	Oct. 10, 2000

The Examiner maintains the following grounds of rejection:

1. Claims 20, 21, 24-26, 29, 48, 49, 52, 57, 58, 59, and 60 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Ruggiero;
2. Claim 83 is rejected under 35 U.S.C. § 102(b) as being anticipated by Brigs;
3. Claims 20-22, 24, 48-50, 52, 57, 58, 76, and 77 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kustermann in view of Franz and Bernert;
4. Claims 23 and 51 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kustermann in view of Franz, Bernert, and Mozzi;
5. Claims 36-38, 40, 55, 64, and 65 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kustermann in view of Franz, Bernert, and Waryu;
6. Claims 30-32, 34, 54, 61, and 62 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kustermann in view of Franz, Bernert, Waryu, and Daniels;
7. Claim 33 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kustermann in view of Franz, Bernert, Mozzi, Waryu, and Daniels;
8. Claim 39 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kustermann in view of Franz, Bernert, Mozzi, and Waryu;
9. Claims 40-42, 46, and 56 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kustermann in view of Franz, Bernert, Waryu, and Kunze-Concewitz;

10. Claim 45 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kustermann in view of Franz, Bernert, Mozzi, and Kunze-Concewitz;

11. Claims 78, 82, and 83 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ruggiero in view of Haaland;

12. Claims 79 and 84 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ruggiero in view of Haaland, and Hensel;

13. Claims 80 and 85 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ruggiero in view of Haaland, and Waryu;

14. Claim 81 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ruggiero in view of Haaland, Waryu, and Kunze-Concewitz.

We reverse the stated rejections for reasons set forth in the Appeal Brief and Reply Brief, as explained below.

#### References Used by Examiner in Rejecting Independent Claims

Ruggiero is directed to an inkjet printing method and apparatus wherein ink droplets are forced through a plurality of orifices in a print head chamber wall in response to the state of energization of a transducer coupled to each inkjet chamber (Abstract; figs. 1, 2, and 9).

Briggs is directed to a portable “waterplay” structure, which is disclosed as being useful for backyard play, including a number of interactive water emitting devices including pipes having orifices, such as conduit member 31a with apertures 107 and a separate directionally adjustable shower head 103 (Abstract, Figs. 1-7, col. 7, ll. 1-48).

Kustermann discloses a method and apparatus for indirect coating of at least one side of a web using a free jet. The setup comprises use of a stream of fluid forced from a nozzle for applying coating material to an applicator or transfer roll, which coating material is thereafter applied to the web (col. 2, l. 55 - col. 3, l. 50).

Franz is directed to a linear curtain spray applicator for coating a moving article, such as for coating a glass substrate with a metal film, and with rinse applicator and coating applicator sprays intersecting with the surface of the article (Abstract, col. 16, l. 10 – col. 20, l. 27). Franz discloses nozzles including a working fluid supplied via an inner tube and a carrier fluid medium supplied via nozzle outlets outside of the inner tube (col. 6, l. 41– col. 8, l. 17, col. 10, l. 36 – col. 11, l. 39).

Bernert discloses the use of spaced-apart single application nozzles 12 for supplying coating medium to a surface in an intersecting (overlapping) manner (Abstract, col. 2, ll. 30-59).

Haaland is drawn to a method and apparatus for forming a thin uniform coating on a substrate, such as a resist coating on a semiconductor wafer, using a droplet forming device and auxiliary excitation such as sonic, electrostatic, gas dynamic or a hybrid valve technique (Abstract, col. 3, ll. 14-59).

## DISCUSSION

It is well settled that the burden of establishing a prima facie case of non-patentability resides with the Patent and Trademark Office (PTO). *See In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984).

### Anticipation Rejections

Concerning the anticipation rejections, the Examiner's failure to carry the burden of establishing that either Ruggiero or Briggs furnishes a description of subject matter corresponding to the requirements of any of the appealed claims subject to being rejected as being anticipated presents a dispositive issue that we decide in Appellant's favor for each of the anticipation rejections maintained by the Examiner on this appeal record.

### Rejection over Ruggiero

With regard to the Examiner's anticipation rejection over Ruggiero, all of the claims subject to that rejection either require forming continuous jets of treating agent by directing treating agent through nozzle plate openings as part of a method of applying treating agent onto a moving surface (*see* rejected independent claim 20), or treating agent application apparatus, including a nozzle plate having openings for forming such continuous jets of treating agent (*see* independent claim 57). We focus on independent claims 20 and 57 in considering the propriety of this anticipation rejection, as maintained by the Examiner in light of the arguments furnished by Appellant.

The Examiner generally relies on Ruggiero's disclosure of an impulse inkjet apparatus that includes chambers having orifices 40 and 42 in a chamber wall for ejection of droplets of ink and directing the ejected droplets onto a surface of moving paper in rejecting claims 20, 21, 24-26, 29, 48, 49, 52, 57, 58, 59, and 60 as being anticipated by Ruggiero (Ans. 3-4; Ruggiero, abstract, col. 3, ll. 18-66 and Fig. 1).



The Examiner takes the position that the droplet ejection of Ruggiero describes the claimed formation of continuous jets of treating agent (claim 20) or apparatus capable of such continuous jet formation therein. In this regard, the Examiner takes the position that Appellant does not furnish a definition for “jet.” Consequently, the Examiner maintains that the ink “jet” method of Ruggiero, wherein droplets are ejected, results in continuous droplet ejection for at least a short time which satisfies the claimed “continuous jet” limitations.

Appellant, on the other hand, contends that Ruggiero only discloses droplet formation and apparatus therefor, not the continuous formation of jets of a treating agent by directing the agent through nozzle plate openings, including apparatus for forming such continuous jets, as claimed (App. Br. 8-9). In this regard, Appellant notes that Ruggiero is directed to a method and apparatus for ejecting one droplet of ink at a time even when more than one droplet is ejected (Reply Br. 2). According to Appellant, ejection of a continuous jet of ink would not be congruent with the ink jet printing method of Ruggiero and Appellant notes that a series of droplets is not a continuous jet (App. Br. 8; Reply Br. 2).

We agree with Appellant as to the claim interpretation and reference interpretation dispute surrounding the anticipation rejection over Ruggiero. In particular, we note that Appellant’s Specification explains that “[t]he diameter of the jets is very small, but the jets are not dispersed into spray, whereupon their mass and impulse strength are high compared with a spray...” (Spec. 6). Thus, giving the rejected claims their broadest reasonable interpretation in light of the Specification as they would be understood by one of ordinary skill in the art, we determine that the claim

term “continuous jet” does not embrace a series of ejected droplets as disclosed by Ruggiero. Consequently, on this basis the Examiner’s rejection position falls short of establishing that Ruggiero anticipates the rejected method claims, including independent claim 20.

As for the apparatus claims, the Examiner has not reasonably established that the ink jet assembly of Ruggiero is constructed so as to be capable of forming a continuous jet of treating agent with apparatus including a nozzle plate with openings arranged as independent apparatus claim 57 calls for based on the disclosed structure of Ruggiero, including transducers energized for ejection of droplets of ink through the chamber wall orifices of Ruggiero.

It follows that the Examiner’s anticipation rejection of claims 20, 21, 24-26, 29, 48, 49, 52, 57, 58, 59, and 60 over Ruggiero is reversed.

#### Rejection over Briggs

With regard to the anticipation rejection of claim 83 over Briggs, the Examiner refers to a nozzle plate element 107 of Briggs as corresponding to Appellant’s claimed nozzle plate element having a length greater than the width of the moving surface to be treated and refers to column 7, lines forty through forty-seven of the disclosure of Briggs as describing subject matter corresponding to the claimed actuators for movement of the nozzle plate in the statement of the rejection presented (Ans. 4 and 5). However, this assertion of the Examiner is confusing non-moving with moveable aspects of Briggs’ apparatus. The Examiner does not explain how the openings (107) of Briggs’ fixed pipe (103a) together with Briggs’ disclosure of a separately swiveling shower head (103), as referred to by the Examiner in

the rejection, corresponds to the at least one nozzle plate and actuator for moving the at least one nozzle plate of rejected claim 83.

In claim 83, the actuator is required to be operatively connected to move the nozzle plate, which plate has a length greater than a width of a moving surface, relative to a feeding chamber and outside the area of the moving surface to be treated. In contrast, openings 107 of pipe 103a of Briggs are not connected for movement with shower head 103. As argued by Appellant, even if the Examiner's rejection was intending to equate the shower head 103 with the claimed nozzle plate, the Examiner has not persuasively articulated how only the end plate of the shower head where openings 151 are located helps the Examiner's case. In this regard, even if the shower head endplate with openings 151 could conceivably correspond to Appellant's nozzle plate and if that were the rejection that was made by the Examiner, which it is not, the shower head endplate does not move relative to the feed chamber (inside the shower head), which that end of the shower head closes, as is required by claim 83 (App. Br. 9-10; Reply Br. 2-3).

On this record, we reverse the Examiner's anticipation rejection of claim 83.

### Obviousness Rejections

On this appeal record, the Examiner's fails to carry the burden of establishing an adequate factual basis and/or a persuasive rationale for establishing why one of ordinary skill in the art would have been led to select any of the proposed combinations of references and modify the applied prior art in a manner that would have resulted in subject matter

corresponding to the requirements of any of the appealed claims rejected under 35 U.S.C. § 103(a). This inadequacy presents the dispositive issues that we decide in Appellant's favor for the obviousness rejections advanced by the Examiner.

Kustermann in view of Franz and Bernert

We focus on claims 20 and 57, the sole independent claims subject to this rejection.

As acknowledged by the Examiner, "Kustermann fails to teach sending the treating agent into a feeding chamber ... then forming jets through openings defined by the peripheries of a nozzle plate" (Ans. 6).

The Examiner relies on Franz for allegedly teaching "forming a jet using a pipe, by directing the treating agent through an opening of the nozzle plate, wherein the opening is solely defined by the nozzle plate as required by the rejected claims.

The Examiner concludes that:

it would have been obvious to one skilled in the art at the time of the invention to modify Kustermann to use the pressurized spray nozzle suggested by Franz to provide a desirable application of a treatment agent because Kustermann teaches applying a treating agent through a pressurized jet onto a surface moving along a path and Franz teaches a known pressurized jet using openings in a nozzle plate to apply a treating agent onto a moving surface.

Ans. 6.

On the other hand, Appellant argues that Franz discloses a pipe 278 for supplying a working medium which only partially forms jets in that Franz discloses a carrier medium is introduced through holes 280 to atomize

the working fluid (App. Br. 11 and 12). Thus, Appellant contends that Franz does not teach or suggest a step of forming a continuous jet via openings defined solely by a nozzle plate. Hence, Franz does not support the Examiner's proposed modification of Kustermann in Appellant's view. We agree.

As we noted above in discussing the anticipation rejection, the Appellant's claim requirement for a continuous jet of treating agent does not encompass a spray or droplets, as evident when reading the claims in light of the Specification (Spec. 6). Moreover, the Examiner has not established that the atomizing nozzles of Franz form continuous jets of treating agent via openings in a nozzle plate defined entirely by the periphery of the nozzle plate and wherein the jets are separated from the other jets at the exit of the jets from the nozzle plate, as acknowledged by the Examiner (Ans. 7). In this regard, the Examiner additionally relies on Bernert for allegedly teaching and suggesting such a feature for use in modifying Kustermann (Ans. 7). However, as noted by Appellant (App. Br. 12), Bernert discloses the use of separate nozzles, not openings defined solely by at least one nozzle plate (Bernert, elements 10 and 12).

Consequently, the Examiner has not established that the proposed combination of disparate selected elements from each of Kustermann, Franz and Bernert would have led to subject matter embraced by the rejected appealed claim. This is so even if the Examiner's conclusive rationale alleging that one of ordinary skill in the art would have been led to such a selection and combination of components from the Examiner's assembly of references represented a credible rationale that furnished apparent reasons to combine such features in a modification of Kustermann's indirect web

coating apparatus and method based on the disparate teachings of Franz with respect to coating an article, such as a glass substrate, using a curtain spray applicator and the teachings of Bernert with respect to applying coating medium in single application regions using single application nozzles.

#### Ruggiero in view of Haaland

Regarding the obviousness rejection of claims 78, 82, and 83 over the combined teachings of Ruggiero and Haaland, we note that the Examiner again relies on Ruggiero for forming jets of treating agent by directing treating agent through openings in a nozzle plate. As we discussed above with respect to the Examiner's anticipation rejection over Ruggiero, we determine that the claim term "continuous jet" does not embrace a series of ejected droplets as disclosed by Ruggiero with respect to discharging droplets of printing ink. The Examiner relies on Haaland for allegedly teaching the provision of a fluid reservoir or pipe for storing fluid to be ejected from a nozzle at an external location, not for ejecting continuous jets of treating agent and apparatus therefor, as claimed (Ans. 14).

Consequently, on the aforementioned basis alone, the Examiner's rejection falls short of discharging the burden to establish that Ruggiero in combination with Haaland would have rendered the subject matter of claims 78, 82, and 83 obvious to one of ordinary skill in the art at the time of the invention. Moreover, we agree with Appellant that Ruggiero fails to teach or suggest a nozzle plate that moves relative to a feed chamber and transverse to the direction of movement of the moving surface that the jets are directed to and Ruggiero does not provide an actuator for such nozzle plate movement (claim 83) (App. Br. 14-15). The Examiner does not

establish otherwise by a general referral to Figure 1 and column 3 of Ruggiero (Ans. 13-14).

It follows that we reverse the Examiner's obviousness rejection over Ruggiero and Haaland.

#### Other Rejections

As for the separate obviousness rejections of the dependent claims, we note that each of these rejections suffers from the same inadequate foundation as discussed above with respect to the rejections of the independent claims, which defects the Examiner has not remedied by piling on additional references for allegedly showing added features with respect to several of these dependent claim rejections on top of the aforementioned defective foundation.

It follows that we reverse all of the Examiner's obviousness rejections, on this record.

#### CONCLUSION/ORDER

The Examiner's decision to reject the appealed claims is reversed.

REVERSED

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Appeal 2009-001140  
Application 10/019,120

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